VP-3501 Videotex Data Terminal

Turn your home TV into a time-sharing videotex display.

VP-3501 Videotex Data Terminal . . Color graphics and

Go "on-line" with time-sharing networks and computers. The remarkable new RCA Videotex Data Terminal, VP-3501, with built-in direct connect modem and RF modulator communicates with a computer via your telephone. . .and the computer response is displayed on your TV set. It's as simple as that.

A whole world of information and entertainment is now available from nationwide subscription networks such as CompuServe, The Source, and Dow Jones News/Retrieval.

As a subscriber, you'll find that news, weather, sports, entertainment, financial and other information are instantly available on your TV screen. You can initiate commercial transactions. Or even create your own programs to run on a host computer! Just look what you can do!

- Receive electronic editions of newspapers, plus AP news and sports wire.
- Receive the latest Dow Jones stock prices.
- Send and receive "electronic" mail.
- Access weather reports.
- Get up-to-date airline schedules and make reservations.
- Place classified ads and buy from others.
- Receive restaurant recommendations.
- Play computer games.
- Access available school or company computers.
- Get the latest sports results.
- Acquire information on a corporation.
- Maintain business records.
- Send and receive newsletters.
- Check your horoscope.
- Purchase products.
- Write your own computer programs in Basic, Pascal, Fortran, Cobol, etc.

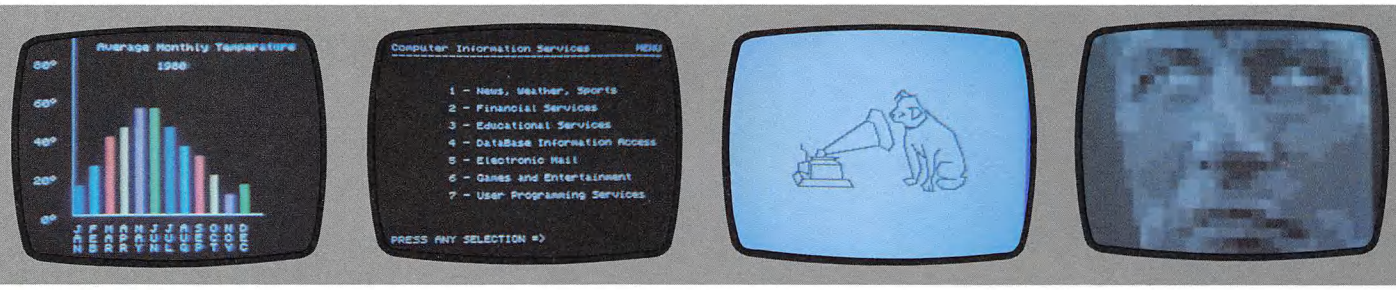
These are examples of some of the services that can be obtained for display on your TV screen. And the services are growing!

Study the features and specifications below. The VP-3501 offers the features videotex enthusiasts are looking for and more. Need hard copy? The VP-3501 has a built-in printer interface. In addition, an expansion interface allows the use of add-on intelligence and memory. An optional Cassette Recorder Interface accessory lets you use the terminal with a cassette recorder to store data from the host computer for viewing later off-line.

The RCA Videotex Data Terminal comes complete with antenna switch box, modular telephone "T" adaptor, low voltage power supply, interconnecting cables, user manual and installation guide.

Rugged, Reliable and Portable

The VP-3501 incorporates microprocessor control and state-of-the-art LSI circuitry to provide many premium features. It utilizes modern flexible-membrane key switches with light positive activation pressure. Contact life is rated at greater than ten million operations. A finger-positioning overlay combined with the positive keypress action gives a natural operator "feel". The unitized keyboard surface, combined with



Specifications

DISPLAY

Screen Format: Software or keyboard selectable, 24 lines of 40 characters or 12 lines of 20 characters, one page of data.

Character Font: 5 x 6 dot matrix in a 6 x 8 block, descenders for lower case characters.

Resident Character Set: 52-upper and lower case alphabetic characters, 10-numerals, 32-punctuation and math characters, 31-control characters (Switch selectable control character display for programming convenience).

User Definable Characters: Any bit patterns in a 6 x 8 character block may be set with a command control sequence. A total of 128 characters may be defined at one time.

Cursor: Blinking. May be set to non-blinking or turned off with a command control sequence.

Reverse Video: Control character or sequence turns reverse video on and off permitting one or multi character, word, or line reverse video images.

Character Color/Intensity: Choice of 8 colors or 8 levels of brightness.

Background Color/Intensity: Choice of 8 colors or 8 levels of brightness.

KEYBOARD

Format: 58-key, typewriter format, alpha numeric keypad-includes two user keys (Switch closures to expansion interface). 16-key calculator format keypad.

Key Switches: Flexible membrane, polycarbonate material.

Rollover: Two key.

User Keys: Two SPST, normally open, momentary switches (30 V, 0.1 A, 1 W max.).

Key Life: Greater than 10 million operations.

Code: ASCII (American Standard Code for Information Interchange).

Character Set:

Standard Upper/Lower Case - 128 codes generated:
95 printable characters, 33 control characters.
Upper Case Only (Switch Selectable) - 102 codes generated:
69 printable characters, 33 control characters.

Break Key: Causes continuous transmission of binary state zero.

USER CONTROL

Switch Selectable: On-line/off-line (off-line is a local mode), upper-lower/upper case only, full/half duplex, parity bit-even, odd, mark, or space, control execute ON/OFF, control display ON/OFF, RF out CH 3/CH 4.

AUDIO

Programmable Frequency: Selectable tones cover a fourteen octave range from 14 Hz to 230 kHz.

Programmable White Noise: Eight selectable cut-off frequencies.

Programmable Volume: 16 levels of amplitude.

Keyboard Tone: Aural keypress feedback. Can be software disabled.

OUTPUT

RF: Composite color video signal, NTSC compatible, modulated to 61.25 MHz (Channel 3) or 67.25 MHz (Channel 4), switch selectable. Sound subcarrier. 75 ohm female RCA phono connector. Ten foot 75 ohm rf cable (VP-628PH) and antenna isolation switch with 75 to 300 ohm balun included.

a built-in modem.

high noise immunity CMOS circuitry makes the terminal particularly suitable for use in hostile environments. The metal case, low profile switches and small size make it "Briefcase Portable".

Built-In 300 Baud Modem (FCC Approved)
Connects directly to the telephone line via a modular jack. Where modular jacks are not available, RCA's optional Acoustic Coupler, Model VP-3501AC, may be used.

Built-In RF Modulator
Connects directly to the antenna terminals of a standard 525 line color or black and white TV receiver. A switch allows information display on either Channel 3 or 4. An audio subcarrier permits the use of the receiver's speaker and volume control. Audio and NTSC compatible base band video are also available at a second output for use with a video monitor and audio system.

Color Graphics
Individual characters and background may each be displayed in one of eight, software selectable colors (brightness levels with black and white displays). Unique color-locking circuitry gives sharp color graphics and rainbow-free characters.

Resident ASCII Plus Dynamically Redefinable Character Sets (DRCS)
Resident ASCII 128 character set. Any or all characters are soft-ware redefinable – allows Greek letters or other foreign alphabets, graphic symbols, large graphic building blocks, playing card suits, unique character fonts – even "little green men". Instant software recovery of resident set.

Two Character Display Formats
A format of either 40 characters by 24 lines or 20 characters by 12 lines is keyboard or software selectable.

Alpha Numeric and Numeric Keypads
Standard typewriter format keypad for text plus a calculator format keypad to facilitate numeric entries.

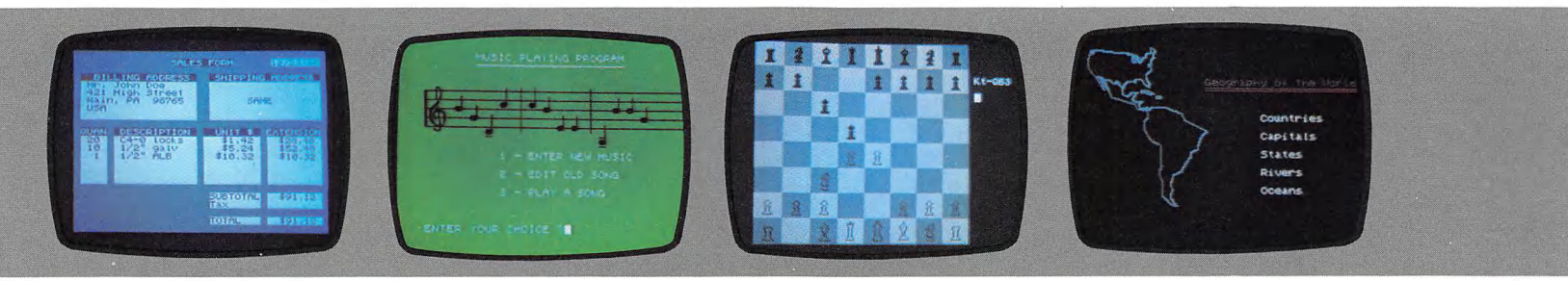
Reverse Video
Software controllable reverse video and blinking reverse video create visual emphasis for individual characters, multiple characters, words or lines.

Aural Keypress Feedback, Sound Effects or Music
Used for aural keypress feedback, the built-in tone and white noise generator can be used for end-of-line bell, error messages, prompts, sound effects or even music.

Switch Selectable Configuration Control
Configuration options include on-line/off-line, upper-lower/upper case only, full/half duplex and mark/space or even/odd parity.

Complete Control of Cursor
Direct cursor addressing to any screen location speeds display formatting. Cursor On, Off, Backspace, Forespace, Upline, Downline, Return, Tab and Home are keyboard or software controllable.

The RCA VP-3501 is as easy to hook up as a video game. All you need is a telephone, a TV set and the VP-3501 Videotex Data Terminal.



Baseband Video/Audio: Composite color video signal, NTSC compatible, 1.0 V p-p into 75-ohm termination. Audio output has a manual volume control and will drive an 8-ohm load. DIN connector. Order mating cable, VP-629PL or VP-629PH, separately.

MODEM
Type: Bell 103 compatible, direct connect, FCC approved.
Mode: Originate.
Data Rate: 300 baud.
Receive Frequency:
Mark – 2225 Hz.
Space – 2025 Hz.
Transmit Frequency:
Mark – 1270 Hz.
Space – 1070 Hz.
Receive Sensitivity: -45 dBm.
Transmit Level: -15 dBm.

DATA FORMAT – RECEIVE
Method: Asynchronous; serial-by-bit; serial-by-character.
Code: ASCII; 1 start bit, 7 data bits, 1 parity bit-ignored; 1 stop bit.

ACCESSORY EXPANSION INTERFACE – 15-pin subminiature "D" connector.
1. RS-232C, 300 baud, output for printer.
2. TTL compatible, 19.2 kilobaud, bidirectional serial data for communication with an external "smart box". (Page storage; local processing; automatic terminal interfacing such as automatic dialing, etc.; and other intelligence.)
3. Output to Cassette Recorder Interface.
4. User key connectors – switch closures.

INDICATORS
Carrier Detect: LED "on".
Bell: Audible tone.

RESET SWITCH
Type Momentary contact pushbutton.
Function: Reinitializes display and terminal parameters.

POWER
Input: 120 V, 60 Hz wall receptacle type power supply included. UL approved.
Switch: Power ON/OFF, Positive detent pushbutton.

PHYSICAL
Size: 17" L x 7" D x 2" H.
Shipping Weight: 6 lbs. approx.

ENVIRONMENTAL
Temperature:
Operating: 0 to 50° C (Power supply: 0 to 30° C)
Storage: -40 to +85° C.
Humidity: 90% RH @ 30° C, non-condensing.
Vibration:
3-axes, -0.3" p-p, 5 to 14 Hz.
3 g, 14 Hz to 2 kHz.
Shock: 3-axes – 50 g, 11 m sec, 1/2 sine wave.

Accessories Available

VP-3501AC: Acoustic coupler for use where modular telephone jacks are not available for direct connection (older installations, hotels, business phones, etc.). Fits standard phone handset. Receives power from the VP-3501 terminal. Plugs into the PHONE input of the terminal. Includes cable.

VP-3501CR: Cassette Recorder Interface. Use with standard, inexpensive audio cassette recorder to record time sharing sessions and data for off-line review. Attaches directly to the "Accessory" connector of the VP-3501. A loop-thru connector allows simultaneous connection of other accessories.

VP-3501CCB: 36" accessory cassette interface cable which permits the cassette recorder interface to be separated from the terminal.

VP-628F: RF cable for direct connection from terminal to TV when antenna is not used. RCA Phono to "F" connector.

VP-629: 6' cable for direct connection from terminal to a TV monitor. DIN type terminal connector to RCA Phono Plugs. (Video and Audio)

Command Summary

Operating Modes:			
Display OFF	----	ESC	ESC D 0
ON	----	ESC	ESC D 1
Resolution HI (40 × 24)	----	ESC	ESC R 1
LO (20 × 12)	----	ESC	ESC R 0
Reverse Video ON	CTRL/O	ESC	ESC S 1
OFF	CTRL/N	ESC	ESC S 0
Keyboard ON	----	ESC	ESC K 1
OFF	----	ESC	ESC K 0
Define Command Delimiter	----	ESC	ESC X **c**
Screen Maintenance:			
Clear Entire Screen	CTRL/L		ESC j
Clear to End of Screen			ESC J
Clear to End of Line			ESC K
Color and Graphics Control:			
Background Color	----	ESC	ESC B **h**
Foreground Color	----	ESC	ESC F **d**
Line Color	----	ESC	ESC L **d c**
Line Reverse Video	----	ESC	ESC S 2 **c**
Pattern Change	----	ESC	ESC P **c (16 h's)**
Implant Literal Character	----	ESC	ESC I **c**
Reload English Char. Set	----	ESC	ESC E

Cursor Manipulation:			
Cursor OFF	----	ESC	ESC C 0
ON	----	ESC	ESC C 1
NO BLINK	----	ESC	ESC C 2
Backspace (Cursor ←)	CTRL/H		ESC D
Forespace (Cursor →)	CTRL/U		ESC C
Upline (Cursor ↑)	CTRL/K		ESC A
Downline Form Feed—(Cursor ↓)	CTRL/J		ESC B
Carriage Return (Return)	CTRL/M	----	
Tab	CTRL/I	----	
Home	CTRL/Z		ESC H
Address Cursor	----		ESC Y **cc**
Audio Control:			
Bell	CTRL/G	----	
Keyboard Tone OFF	----	ESC	ESC T 0
ON	----	ESC	ESC T 1
Tone Generator	----	ESC	ESC M **hhhh**
Noise Generator	----	ESC	ESC N **hh**
Terminal Identifier:			
Interrogation		----	ESC I
Response		#RC1	<CR>

Where: **c** = ASCII Character
d = Decimal Digit (0 to 9)
h = Hex Digit (0 to 9 & A to F)

RCA MicroComputer Products

For how-to-order information, call toll-free, 800-233-0094.
In Pennsylvania, call 717-397-7661.

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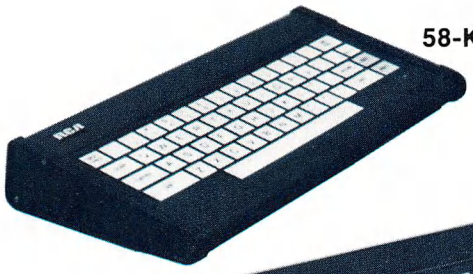
Supersedes 11-81 Printed in U.S.A./**3-82**
VP-3501

VP-600 Series

Full ASCII Encoded Keyboards

Parallel or Serial Output

Suitable for Hostile Environments



58-Key Typewriter Format for Alphanumeric Entry
VP-601 - 8-bit parallel output
VP-606 - Asynchronous serial output

58-Key Typewriter Format Plus Separate 16-Key Calculator-Type Keypad for Fast Numeric Entry
VP-611 - 8-bit parallel output
VP-616 - Asynchronous serial output

128-Character, Fully Encoded ASCII Alphanumerics

Positive Light Touch Keys - Two User-Definable

Operation From Single +5 Volt Supply

Three Serial Communication Modes:
EIA RS-232C Compatible 20 mA Current Loop or TTL

Professional quality keyboards suitable for demanding environments, these handsomely styled units feature ASCII encoded 128-character alphanumerics in a low-cost, high-volume production package suitable for a wide variety of industrial and consumer applications. The boards utilize modern, high-technology, flexible-membrane, key switches with a light positive activation pressure. Contact life is rated at greater than ten million operations. A finger-positioning overlay combined with the positive keypress action gives good operator "feel" and an on-board tone generator gives aural keypress feedback. The unitized keyboard surface, impervious to liquids or dust particles, combined with high noise immunity CMOS circuitry make these units particularly suitable for use in hostile environments.

The user can select either full 128 character ASCII alphanumerics or the 102 character, alphabetical "upper-case-only" where necessary for compatability with other peripherals. Two-key rollover circuitry and an LED power-on indicator enhance usability.

Parallel Output Keyboards provide an unbuffered, even parity bit and buffered KD (keydown), $\overline{KD}$, Strobe and $\overline{Strobe}$ handshake signals for flexability in interfacing. Output is CMOS or TTL compatable and will drive two TTL loads.

Serial Output Keyboards provide three separate asynchronous communication modes: 1) EIA RS232C compatable, 2) 20 mA current loop, 3) TTL. Their data format is switch-selectable. Six switch-selectable baud rates are available. The LED power-on indicator may be used alternatively as a "system-busy" prompt.

RCA MicroComputer Products

Specifications

Character Set 128-character ASCII (102-character alphabetical upper-case-only selectable by user).

Keyboard:

VP-601, VP-606 - 58-key typewriter format. Includes two user-definable keys (switch closures).

VP-611, VP-616 - Same as above plus 16-key numeric entry keypad.

Rollover Two-key.

User Definable Keys Two. SPST (30 V, 0.1 A, 1 W max.)

Audio 1 kHz nom. 8-ohm speaker and volume control.

Power +5 VDC, 85 mA nom. (EIA RS-232C compatable output on VP-606 & VP-616 requires addition of + and -12 VDC nom. (9 to 15 V), 40 mA supplies.

Output:

VP-601, VP-611 Parallel Output Keyboards.

Data 7-bit parallel ASCII, buffered.

Parity Bit Even, unbuffered.

Handshake:

KD (Key Down), $\overline{KD}$. Signal remains until key is released.

Strobe, $\overline{Strobe}$. 15 ms nom. pulse duration after key activation.

LED Power-on indicator.

VP-606, VP-616 Serial Output Keyboards

Communication Interfaces (Asynchronous):

1) EIA RS-232C compatable (see Power).
2) 20 mA current loop. Passive, bipolar. (110, 300, 1200 baud only)
3) TTL (will drive 2 TTL loads).

Data Format Switch-selectable: 7 or 8 bit data word/odd, even or no parity bit/1 or 2 stop bits.

Baud Rates Six, switch selectable: 110, 300, 1200, 4800, 9600 or 19.2 K.

LED Power-on indicator or "system-busy" prompt.

Connectors:

VP-601, VP-611 - 20-pin PC board header connector mates with 3M, 3421-6020 ribbon cable connector (or equivalent).

VP-606, VP-616 - 25-pin output socket mates with male "D" cable connector.

Documentation: Instruction Manual.

Size:

VP-601, VP-606 - 13.1" L x 7" D x 2" H (333 x 178 x 51 mm).

VP-611, VP-616 - 16.5" L x 7" D x 2" H (419 x 178 x 51 mm).

Shipping Weight:

VP-601, VP-606 - 3 lbs. (1.4 kG) approx.

VP-611, VP-616 - 3.5 lbs (1.6 kG) approx.

Environmental:

Temperature: Operating: 0 to 50° C.

Storage: -40 to +85° C.

Humidity - 90% RH @ 30° C, non-condensing.

Vibration, 3 Axes - 0.3" p-p, 5 to 14 Hz - 3 g, 14 Hz to 2 kHz.

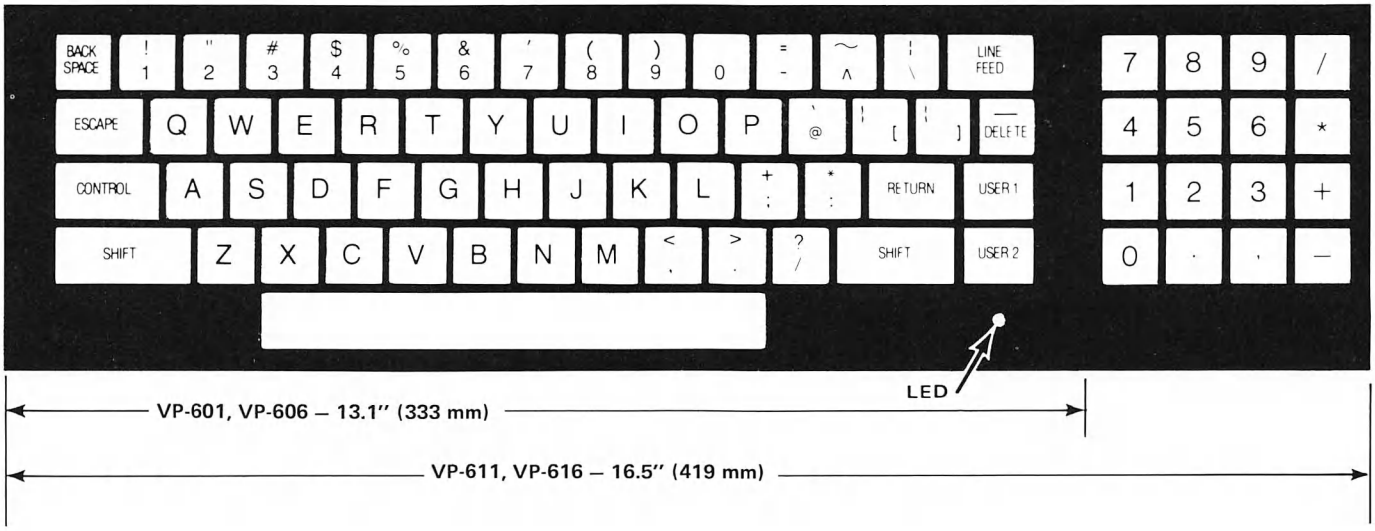
Shock, 3 Axes - 50 g, 11 msec, half sine.

Optional Accessories

VP-601, VP-611 Interface Cable. 36" flat ribbon cable with mating connector and unterminated end - VP-623.

VP-606, VP616 25 pin male "D" connector with solderable pins - VP-626.

All keyboards available less case and speaker for quantity requirements.



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Reprinted 12-81 Supersedes 2-80 Printed in U.S.A./**11-80**
VP-600 Series

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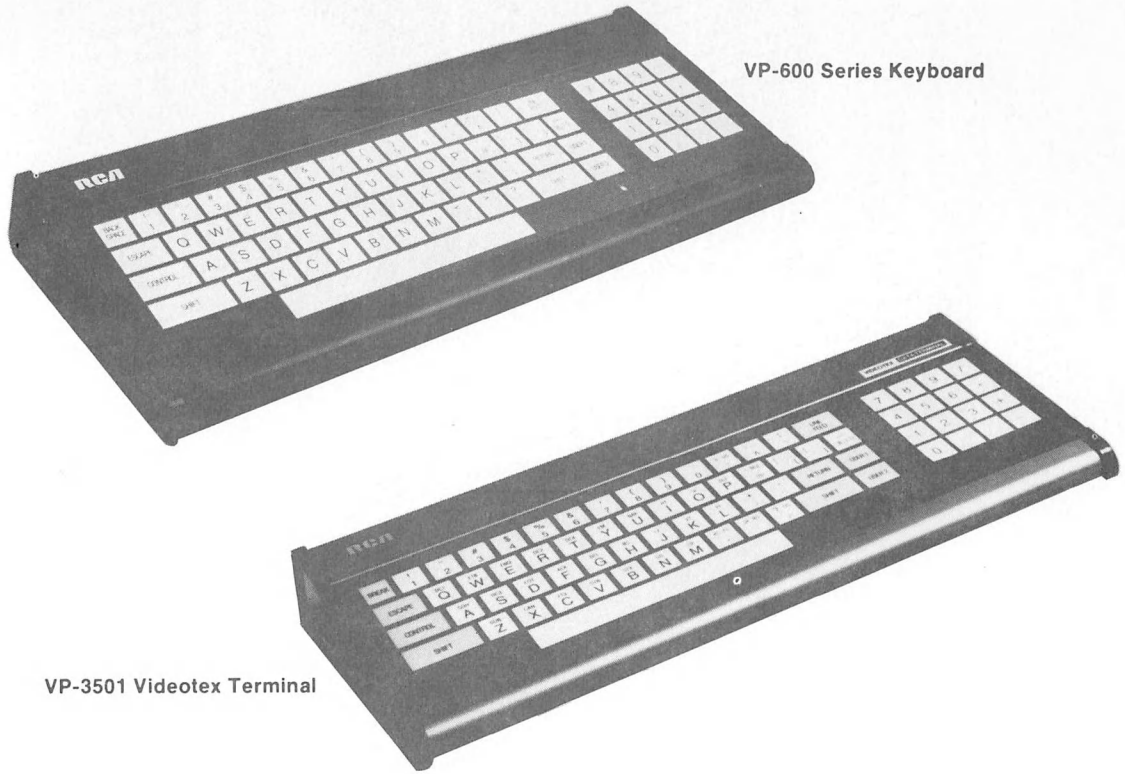

VP-600 Series Keyboard

VP-3501 Videotex Terminal

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